BALTIMORE/WASHINGTON INTERNATIONAL Thurgood Marshall AIRPORT

Quarterly Noise Report
First Quarter 2018

The Maryland Department of Transportation, Maryland Aviation Administration

Office of Environmental Services

Definitions

Airport Noise Zone (ANZ): An area of land surrounding the airport within which noise levels are equal to or greater than DNL 65 dBA.

Code of Maryland Regulations (COMAR): requires MDOT MAA to control development in areas where noise levels are DNL 65 dBA or more.

Decibel (dBA): A unit of measurement of sound pressure adjusted for the human ear's response to particular frequencies.

Day-Night Average Sound Level (DNL or Ldn): A descriptor of 24-hour noise (midnight to midnight) that adds a ten-decibel (dB) nighttime penalty to noise events which occur between the hours of 10 p.m. and 7 a.m to account for the intrusive nature of noise at night.

Maryland Department of Transportation Maryland Aviation Adminstration (MDOT MAA): Operator of Baltimore Washington International Thurgood Marshall Airport (BWI Marshall)

Summary

This report provides a review of the aviation noise abatement program for the 1st Quarter of 2018 (January 1 to March 31). Included in this report is information on jet aircraft operations, observance rates for noise abatement procedures, complaints received about aircraft noise, and community outreach efforts by the Maryland Department of Transportation Maryland Aviation Adminstration (MDOT MAA). The table below displays various measurements in comparison to the 1st Quarter of 2017.

Measurement	1st Quarter (2018)	1st Quarter (2017)
Average Daily Jet Operations	627	589
Average Daily Night-time Operations	95	81
Complaints to Noise Office	6,637	959
West Flow Operations	76%	76%

News Items of Interest

⇒ Transportation Security Administration (TSA) rolled out enhanced screening procedures for carry-on baggage nationwide, after testing the stronger security measures at select airports. Travelers are now required to place all personal electronics larger than a cell phone, including tablets, e-readers and handheld game consoles, in separate bins for X-ray screening, similar to how laptops have been screened for years. In addition, travelers may be instructed to remove any food and powders from their carry-on to allow screening officers to obtain a clear X-ray image for security purposes. The TSA recommends travelers organize their carry-on bags and keep them uncluttered to ease the screening process as it is possible that passengers may experience more bag checks and additional screening of some items. The enhanced carry-on screening procedures have been phased in over the past several months in standard lanes at airports across the country.

⇒ BWI Marshall Airport is purchasing its own Snowcat. The snow-grooming vehicle is most commonly used for smoothing ski slopes. It can drive on top of snow and move, flatten, till and compact it, and can do its job where regular snow removal equipment can't. At BWI Marshall, it will be used to smooth snow around sensitive glidescope antennas that are part of the airport's navigation system. During past major winter storms in 2010 and 2016, crews from Liberty Mountain Ski Resort in Pennsylvania brought a snowcat vehicle to BWI Marshall to remove and smooth snow around its glidescope antennas, moving nearly 10 acres of snow during each storm. "The innovative use of the Snowcat vehicle helped us bring critical navigation technology back online in a more timely manner after major snowfalls, the Snowcat vehicle will help ensure safe airline operations following major winter storms and a faster return to service for airport users." said BWI Marshall Airport Executive Director Ricky Smith.

⇒ Fraport USA is pleased to announce the expansion of LaunchPad, an innovative program that gives local startups and small business owners a unique opportunity to participate in the dynamic retail program at Baltimore/Washington International Thurgood Marshall Airport. The first LaunchPad businesses opened at BWI Marshall Airport in 2017 with merchandise ranging from accessories, hair and beauty products to herbal teas and women's fashions. Two retailers are entering a second year at the airport. Their success has fueled the expansion of the program. "We are pleased with the initial results and positive response to the program. We also congratulate our first-year operators for running their small businesses and bringing an exciting array of local products and services to the airport, this successful pilot opens the door for more local startups and small businesses at the airport" said Brett Kelly, Vice President, Fraport Maryland.

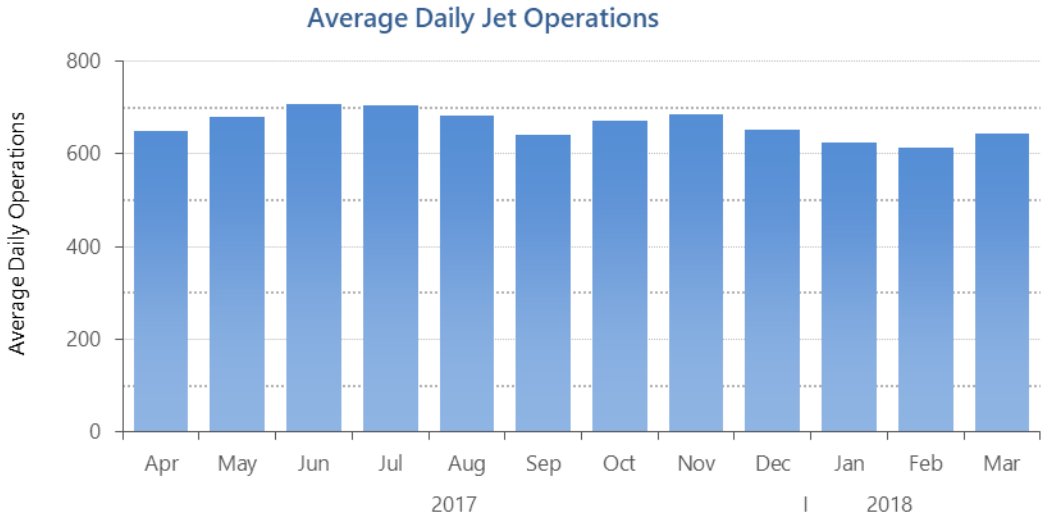
Airport Operations

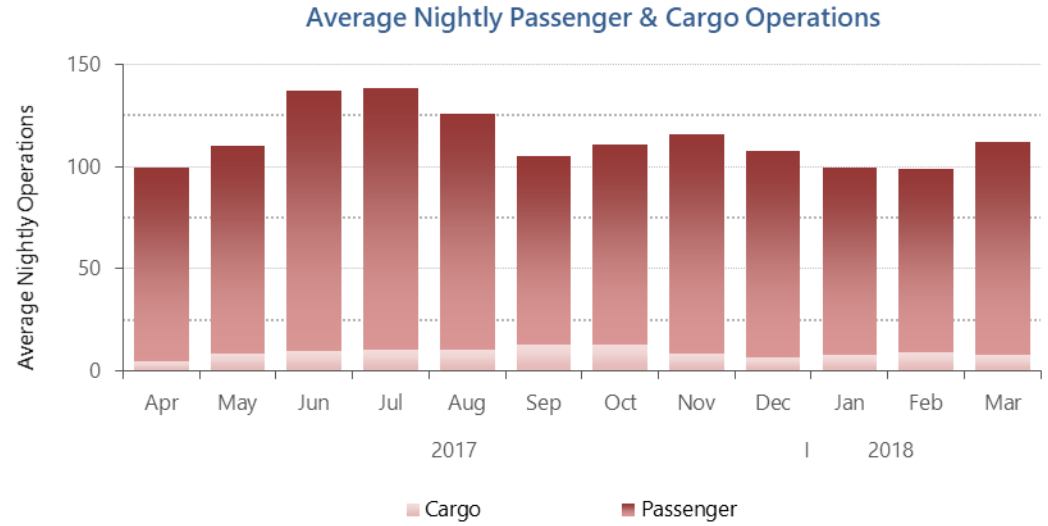
This section presents information on the level of operational activity at BWI Marshall; including air traffic levels by jet aircraft, runway use, and flight corridors.

Jet Operations and Nighttime Activity

The first figure shows the average number of daily jet flights at BWI Marshall, including arrivals and departures by business jets and air carrier aircraft. The figure also presents data for the preceding nine months, for a twelve-month total. The average daily number of jet operations during the 1st Quarter of 2018 was 627.

The next figure presents nighttime air carrier, business jets and cargo jet operations. At BWI Marshall, a nighttime operation is defined as an arrival flight or departure flight that occurs between the hours of 10 pm and 7 am. The average number of nighttime jet operations was approximately 95 per night during the 1st Quarter of 2018.





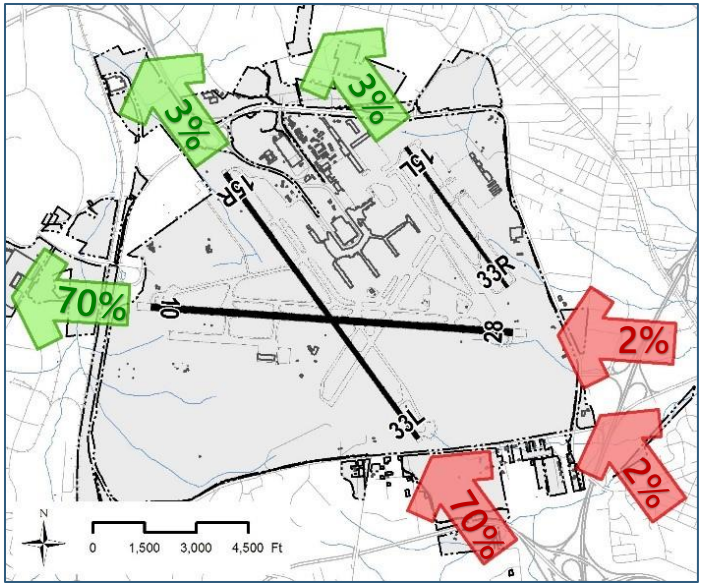
Runway Use

The MDOT MAA maintains a preferential runway use program to minimize the aircraft noise impact on neighboring communities. For noise abatement purposes, west flow (aircraft departures to the west) is preferred. Prevailing wind speed, direction and weather factors determine the direction of air traffic flow. Aircraft usually take off and land into the wind to meet safety and operational requirements. The figures to the right show all jet runway use for the 1st Quarter of 2018.

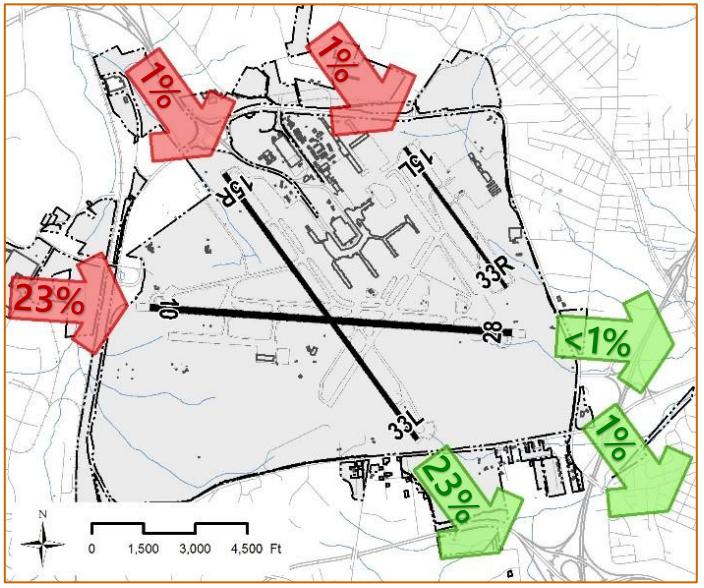
During west flow, all jet aircraft primarily depart (green arrows) from Runway 28 and arrive (red arrows) on Runway 33L, as shown in the top figure to the right.Historical trends result in annual average west flow of about 70%.

During east flow, all jet aircraft primarily depart (green arrows) from Runway 15R and arrive (red arrows) on Runway 10, as shown in the bottom figure to the right. Historical trends result in annual average east flow of about 30%.

West Flow
Runway Use
76% in First Quarter 2018
(Historical Annual Average of 70%)



East Flow
Runway Use
24% in First Quarter 2018
(Historical Annual Average of 30%)

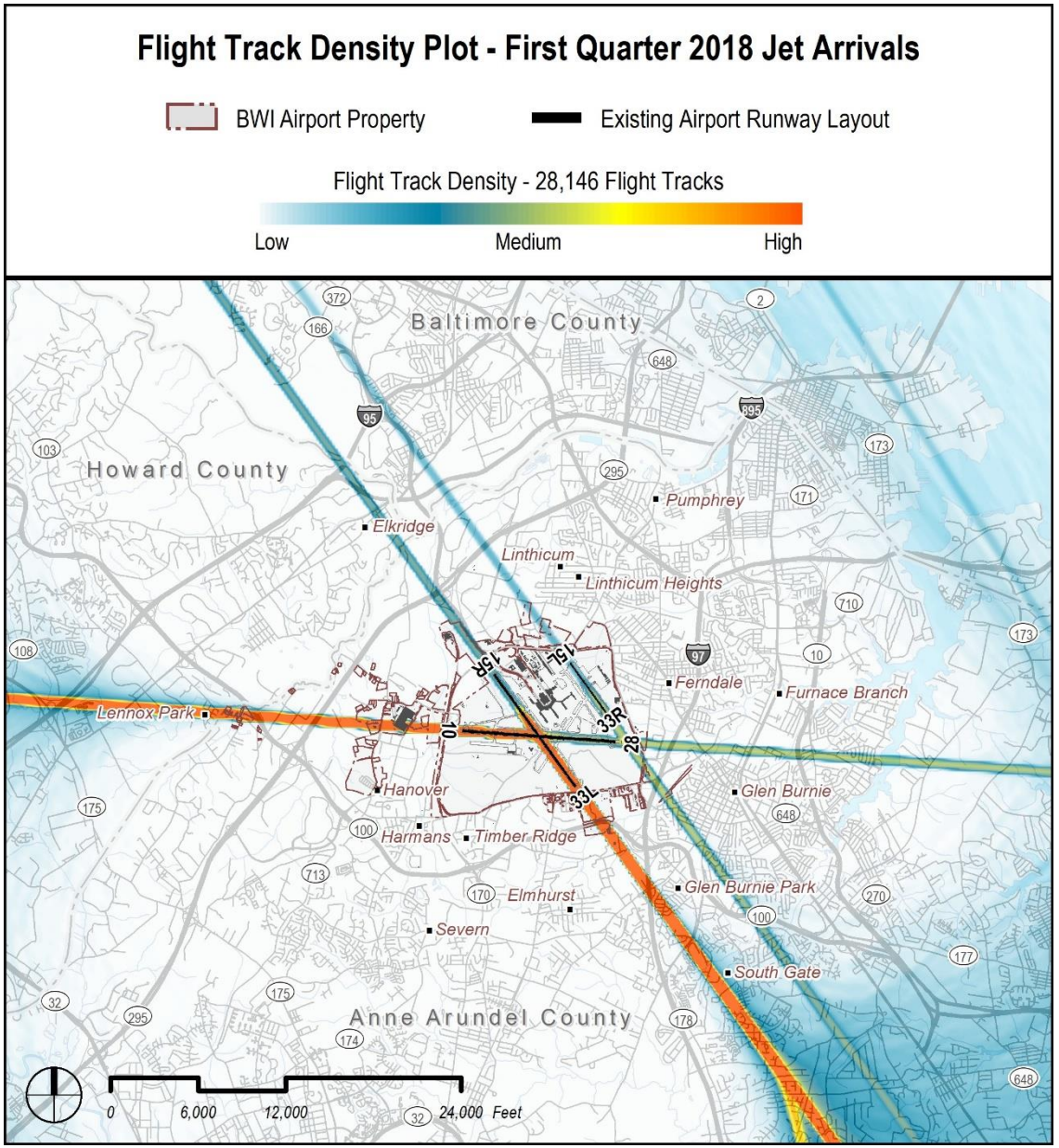


Flight Corridors – Jet Arrivals

The following figures depict the flight corridors at BWI Marshall for jet arrivals and jet departures as derived from BWI Marshall's Noise and Operations Monitoring System (NOMS).

The figure to the right shows all jet arrivals during the 1st Quarter of 2018.

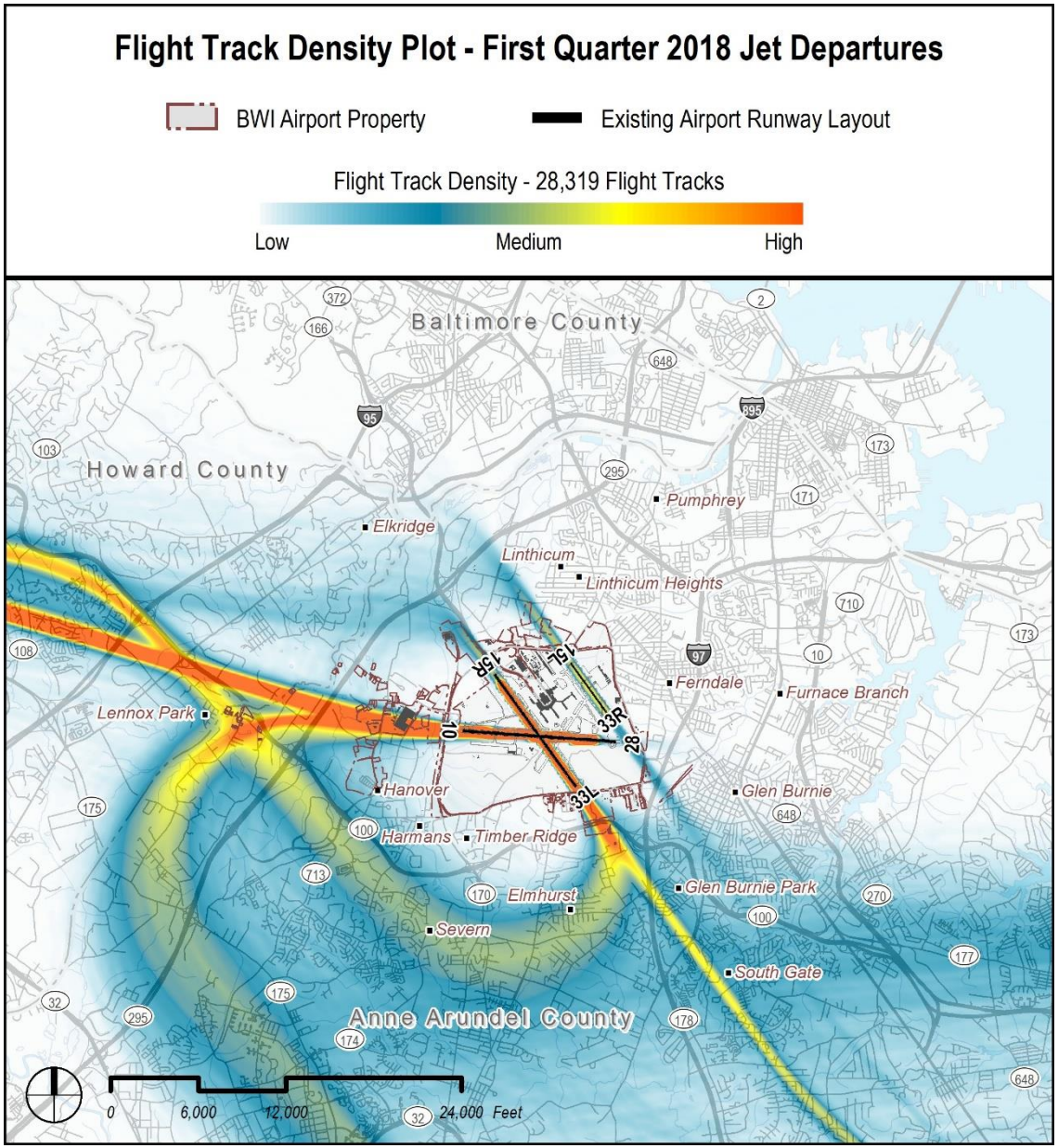
This flight track density plot uses color gradations to depict the flight track geometry, dispersion, and relative frequency of overflights. The color ranges are assigned based on the relative density of aircraft operations. Orange shows the highest density of flights, fading to yellow and then blue as the density decreases.



Flight Corridors – Jet Departures

The figure to the right shows all jet departures during the 1st Quarter of 2018.

This flight track density plot uses color gradations to depict the flight track geometry, dispersion, and relative frequency of overflights. The color ranges are assigned based on the relative density of aircraft operations. Orange shows the highest density of flights, fading to yellow and then blue as the density decreases.



Observance of Noise Abatement Procedures

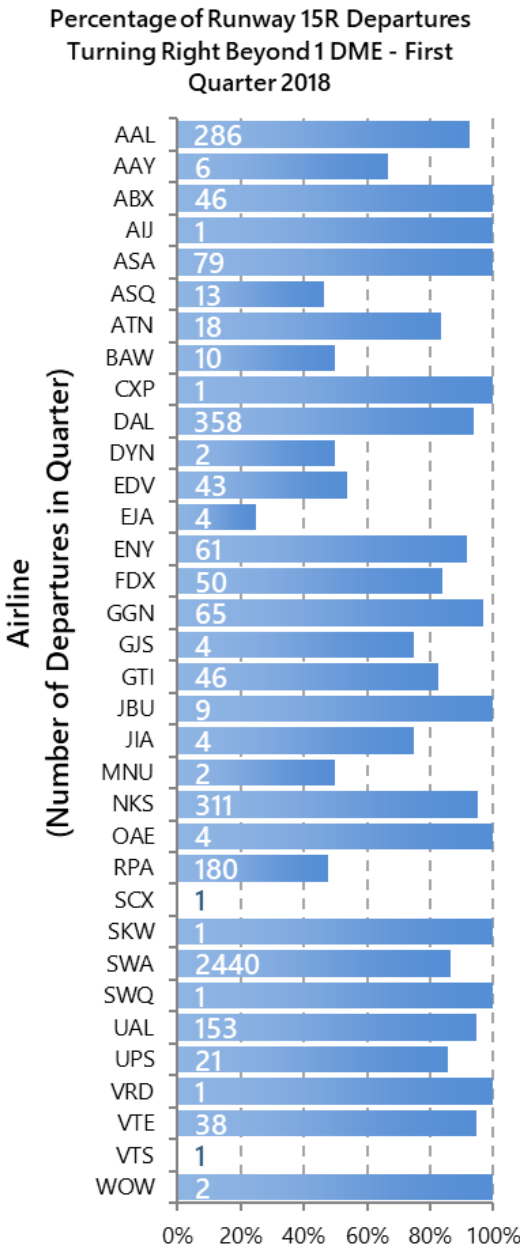
The graphs to the right show how the major carriers and cargo operators perform on the the two noise abatement procedures of most interest to the local communities. These procedures are:

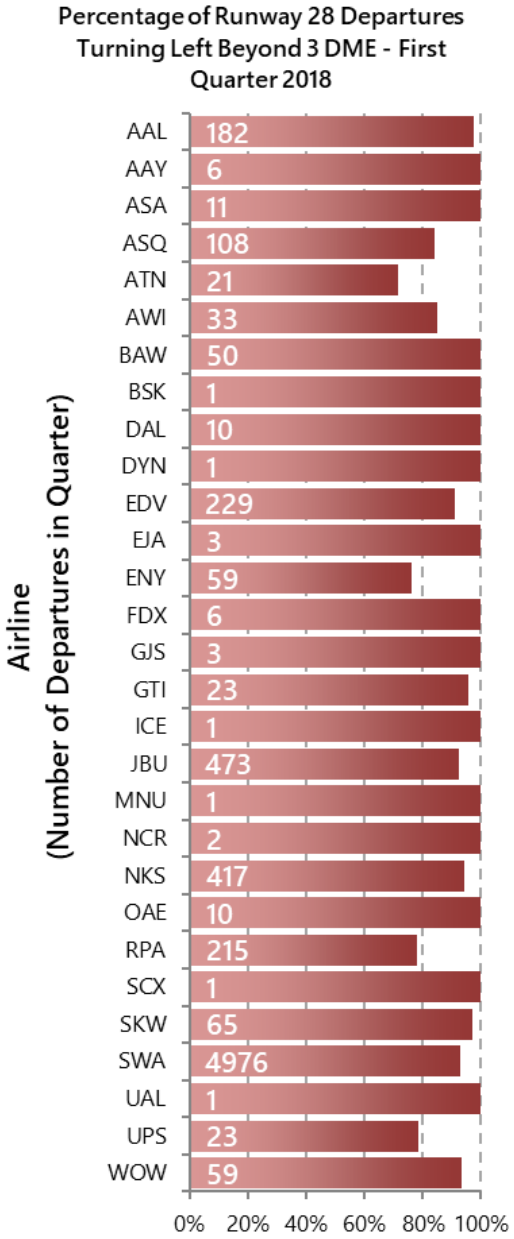
1. Runway 15R departures initiating their right turns at, but not prior to, 1 DME
2. Runway 28 departures initiating their turns at, but not prior to, 3 DME

The graphs show the percentage of flights for each airline which comply with each of the two procedures. DME stands for Distance Measuring Equipment, and is measured slantrange from the navigational aid located near the center of the Airport. One DME equals one nautical mile.

For the 1st Quarter of 2018, 87% of departures turning right off of Runway 15R initated their turns beyond 1 DME.

For the 1st Quarter of 2018, 92% of departures turning left off of Runway 28 initated their turns beyond 3 DME.





Outreach and Community Involvement

The MDOT MAA engages in on-going efforts to enhance the level of communication and interaction between the Airport and area residents.

The MDOT MAA Community Outreach Programs encourage the exchange of information between the MDOT MAA and local community groups and residents. These programs supplement the efforts of the BWI Marshall Neighbors' Committee to promote the active participation of local residents in Airport issues.

Specific services or activities provided by the MDOT MAA are listed in the table to the right along with the number of events or recorded reports.

Public Education & Activities –1st Quarter of 2018	
Committee Meetings	0
Community Meetings	2
Community Noise Monitoring Reports	7
Airport Zoning Permits	61
Mailings	0

DC Metroplex BWI Community Roundtable

The DC Metroplex BWI Community Roundtable is an MDOT MAA initiative formed at the request of the Federal Aviation Administration (FAA).

More information about the Roundtable, including meeting agendas, past meeting minutes, and presentation materials, is available at www.maacommunityrelations.com.

Community Roundtable Meetings – 1st Quarter of 2018

- January 16, 2018
  - Noise 101
  - Proposed FAA Reauthorization Act
- February 20, 2018
  - Air Traffic Control 101
  - FAA Update on Roundtable Action Items
  - Review of 2017 Roundtable Annual Report
- March 20, 2018
  - Meeting cancelled due to weather

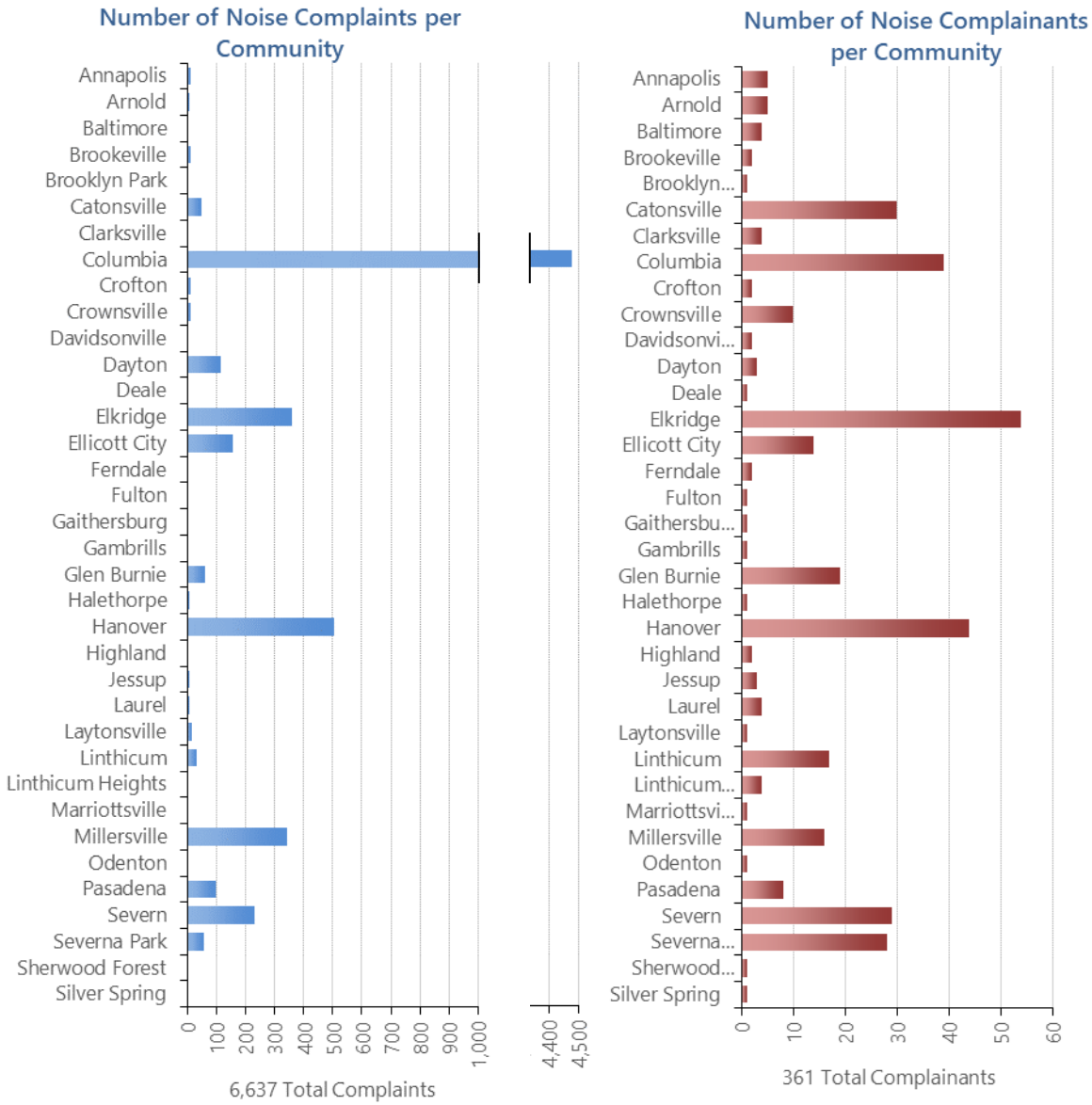
Airport Noise Complaints

The MDOT MAA maintains a 24-hour Airport Noise Hotline at 410-859-7021. Noise complaints can also be entered online at:

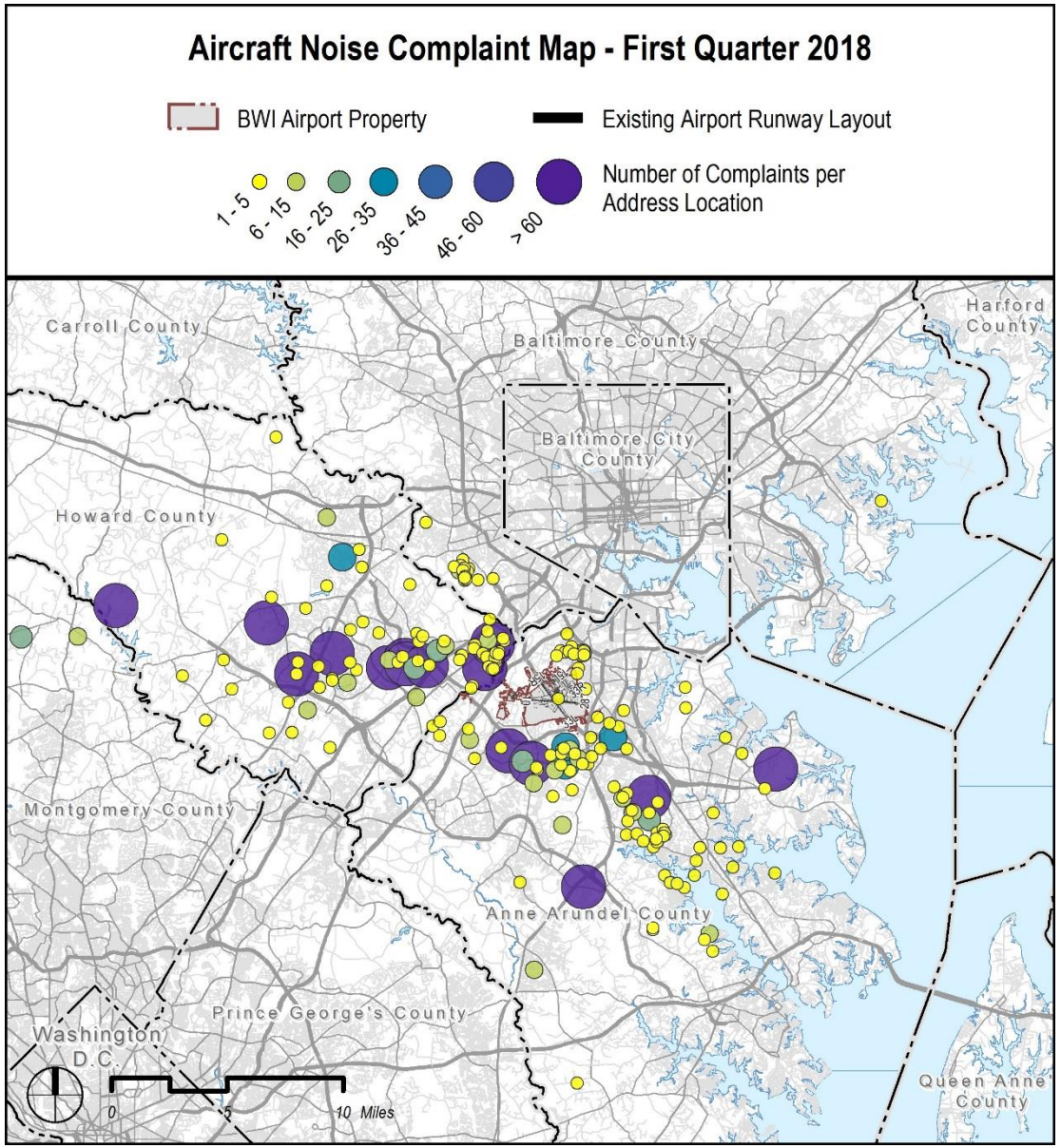
http://www.maacommunityrelations.com/content/anznoiseupdate/noiseform.php

The graphs show the number of complaints and complainants per community for the quarter.

There were 6,637 complaints (361 complainants) during the 1st Quarter of 2018.



The map to the right shows the locations and number of complaints for the 1st Quarter of 2018. The size and color of each caller location denotes the number of times a complaint was submitted during the quarter. Small yellow circles depict locations with fewer complaints while large darker circles depict greater numbers of complaints.



BWI Marshall Neighbors Committee

The BWI Marshall Neighbors Committee was established in December 1983 and serves as a liaison between the Airport and the surrounding communities to ensure continuing and timely discussion of mutual airport and community interests.

The Committee serves as a forum for exchanging information, ideas and suggestions. Examples of interests include ground access (highways, light rail, etc.), long-range transportation planning, operational changes (construction, maintenance and air traffic control), noise abatement and other environmental issues, parking and ground transportation, and land use planning.

Community Enhancement Grant Program

The Annotated Code of Maryland, Transportation §5-414 provides for an 11-member "Citizens Committee for the Enhancement of Communities Surrounding Baltimore/Washington International Thurgood Marshall Airport."

This legislation benefits citizens living within the 1998 certified Airport Noise Zone or within two miles of the outermost noise contour by allowing them to apply for grants for transportation-related projects such as sidewalks, speed humps, street lights, etc. The grants awarded under this program are made by the Secretary of the Maryland Department of Transportation.

BWI Neighbors Committee Community Groups

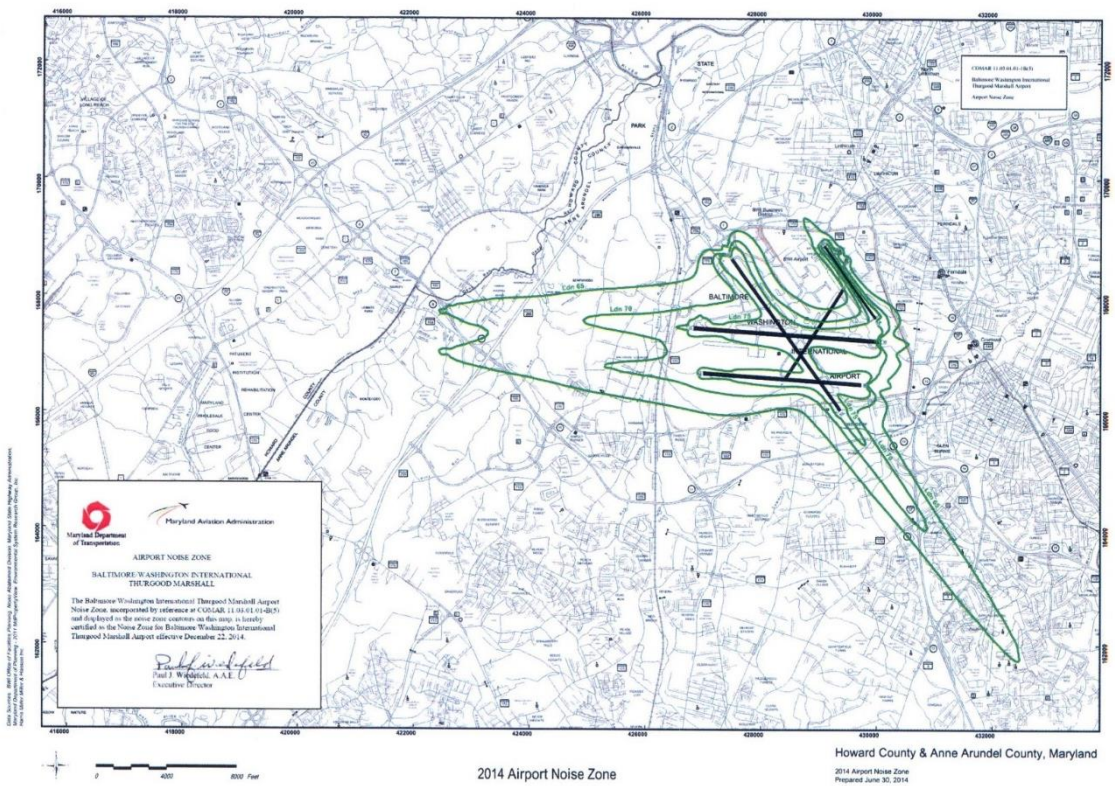
- Columbia Council
- Greater Elkridge Community Association
- Elmhurst Improvement Association
- Glen Burnie Improvement Association
- Glen Burnie Park Civic Association
- Ferndale Area Community Council
- Greater Pasadena Council
- Harmans Civic Association
- Linthicum/Shipley Improvement Association
- Severn Improvement Association
- Timber Ridge Improvement Association

The Community Enhancement Grant Committee met on February 21, 2018 and recommended the approval of one grant application in the amount of $14,590.

Airport Noise Zone

The Maryland Environmental Noise Act of 1974 provides for the protection of citizens from the impact of transportation related noise. The aviation portion of the Act requires the MDOT MAA to create a certified Airport Noise Zone (ANZ) to control incompatible land development around BWI Marshall and a Noise Abatement Plan (NAP) to minimize the impact of aircraft noise on people living near the Airport. An ANZ and NAP were first established for BWI Marshall in 1976. Both were updated in 1982, 1988, 1993, 1998, and 2007. The latest update to the ANZ became effective on December 22, 2014.

The ANZ is determined by a composite of three noise contours: a base year contour, a five-year forecast, and a ten-year forecast. The largest of the three contours in any area around the Airport determines the outline of the ANZ, thereby offering protection within the largest of the existing or future noise contours. The contours depict the Day-Night Average Sound Level (DNL) around BWI Marshall. Both the State of Maryland and the FAA require the use of the DNL metric by all airports conducting environmental studies. The FAA also requires the use of its standard computer model known as the Integrated Noise Model (INM) for developing noise contours. The current 2014 ANZ is depicted to the right.



2014 Airport Noise Zone

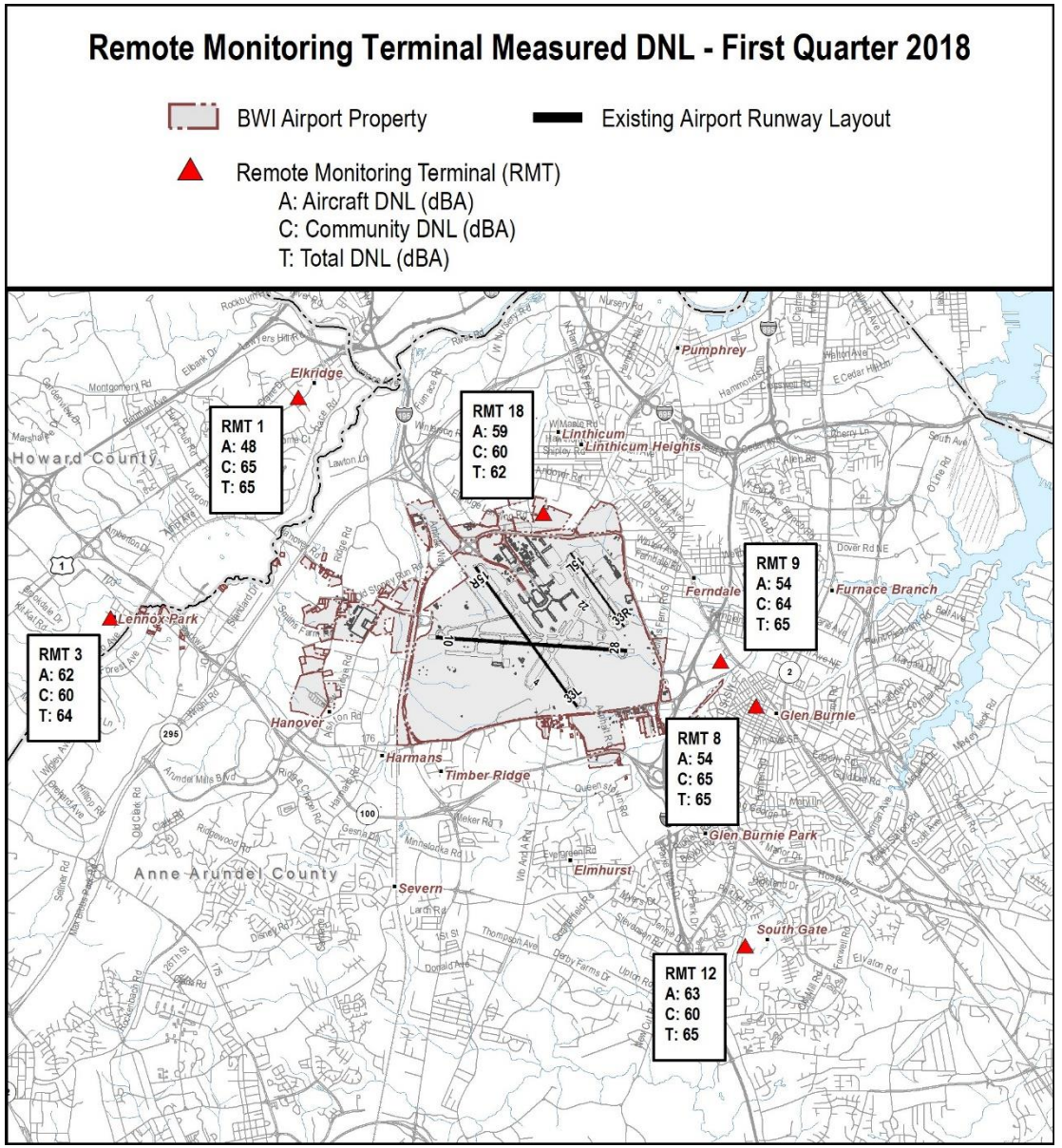
Further information on the ANZ can be found here:

http://www.maacommunityrelations.com/content/anznoiseupdate/bwianz.php

Noise Monitoring Program

The term DNL (symbolized as "Ldn" in mathematical equations) means Day-Night Average Sound Level, and is used to report aircraft, community and total noise levels. DNL is defined as the cumulative sound energy averaged over a twenty-four hour period, with ten-decibels (dB) added to noise events which occur between the hours of 10 p.m. and 7 a.m. This penalty accounts for the greater impact of noise events which occur at night. DNL is measured from midnight to midnight.

The figure to the right shows the quarterly Aircraft (A), Community (C), and Total (T) DNL values at each site, where data is avialable. At some sites community or environmental noise levels (street traffic and other neighborhood noises) exceed aircraft noise levels[1].



[1] The values for RMT 1 reflect the removal of March 12, 2018 from the quarterly average DNL due to an aberrant Community DNL of 113 dBA. The Community DNL and Total DNL were both 94 dBA with this date included in the average. The Aircraft DNL was 48 dBA both with and without this date included in the quarterly average.